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DIVISION OF
OIL, GAS & MINING

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December 18, 1990

Mr. Frank Wicks
Vice President & General Manager
Barrick Mercur Gold Mine
P.O. Box 838
Tooele, Utah 84074

RE: Conditional Approval of Dump Leach
No. 3 Hydrogeologic Report and
Compliance Monitoring Well Network,
Ground Water Quality Discharge Permit
No. UGW450001.

Dear Mr. Wicks:

We have considered your request to operate Dump Leach No. 3 on an interim basis while additional information and studies are being finished to complete both the Hydrogeologic Report and the Compliance Monitoring Wells, as required by Parts I H (3) and I E (2), respectively, of your permit. We have also reviewed time of travel estimates through the liner system provided by Dames and Moore.

Based on these estimates and several conditions listed hereinafter, we have determined that the intent of the permit can be satisfied and operation be allowed to begin without significant risk to ground water quality, human health or the environment.

Conditional approval for interim operation of Dump Leach No. 3 is hereby granted until June 15, 1991. Barrick's Hydrogeologic Report as specified by Part I H(3), and the ground water monitoring well network under Part I E(2) of the permit are conditionally approved contingent upon satisfactory completion and Executive Secretary approval of the following activities:

1. Joint and Fracture Characterization - Barrick shall complete and submit a satisfactory characterization study of the joints and fractures in the bedrock beneath and in the immediate vicinity of Dump Leach No. 3 as soon as ground conditions permit and prior to February 28, 1991. This study shall include a detailed analysis and evaluation of fracture density, orientation, aperture, and resultant permeability of each joint set identified in the December 3, 1990 Barrick submittal and any other joint or fracture set identified during the course of the detailed analysis.

2. Long Term Pumping Test of Monitoring Well MW-10 - Barrick shall complete a long term pumping test of well MW-10 and submit the results thereof to the Executive Secretary. During the test, monitoring wells MW-11 and MW-13 shall be used as observation wells. Data from this pump test shall be corrected for any change in barometric pressure and shall be evaluated with a solution technique approved by the Executive Secretary. Based on the pump test and on the results of the joint/fracture characterization, Barrick shall: 1) estimate the hydraulic conductivity tensor or ellipsoid of the uppermost bedrock aquifer, and 2) demonstrate aquifer interconnection or lack of hydraulic connection between wells MW-10, MW-11, and MW-13. Barrick shall submit the results of this testing and evaluation on or before January 21, 1991.
3. Ground Water Quality Monitoring - Monthly inorganic sampling, analysis and water level measurements of monitoring well MW-13 shall begin immediately, and similar monitoring of the existing wells will continue in compliance with Part I H(5) and Part I E(7) of the permit.
4. Isotopic Ground Water Geochemistry - Barrick shall collect ground water samples from wells MW-10, MW-11, and MW-13 for environmental isotopic analysis of tritium, and deuterium/oxygen-18. A local isotopic baseline shall also be determined for these same isotopes by additional sampling and isotopic analysis of a nearby meteoric spring approved by the Executive Secretary. Barrick will submit the results and evaluation of this sampling on or before February 28, 1991.
5. Ground Water Flow and Advective Dispersion Modeling - Barrick shall complete flow and contaminant advective dispersion modeling of both the unsaturated and saturated zones in the uppermost bedrock aquifer in accordance with a plan approved by the Executive Secretary. The initial plan for this modeling will be submitted by January 31, 1991. The purpose of this modeling shall be to: 1) evaluate how the hydraulic properties of the uppermost bedrock aquifer, determined by previous and the above mentioned studies, effect the flow of ground water and to determine the pathway that a potential contaminant from Dump Leach No. 3 may take, and 2) determine the adequacy of the existing monitoring wells to meet the requirements of Part I E(2) of the permit. This modeling will be completed and submitted for Executive Secretary approval on or before March 31, 1991.
6. Additional Ground Water Monitoring Wells - If after completion of the above mentioned studies it is determined by the Executive Secretary that additional monitoring wells are necessary in order for Barrick to comply with Part I E(2) of the permit, Barrick shall install the necessary wells and complete any necessary testing or studies on or before June 15, 1991. Any additional wells would be completed, sampled, and background quality determined in accordance with Parts I H(4) and (5), and I E(7) of the permit.

7. Water Balance Monitoring - Barrick shall measure and control all flows entering and leaving Dump Leach No. 3 in accordance with a plan approved by the Executive Secretary. This plan will be submitted for Executive Secretary approval by December 28, 1990, and will include:
- a) Measurement of barren solution applied, pregnant liquor removed, any leak collection flows returned to the dump leach, and precipitation that falls onto the dump leach,
 - b) An evaluation of the sensitivity of water balance measurements in detecting fluid losses from the dump leach,
 - c) A determination of flow limits which if exceeded indicate fluid seepage losses from the dump leach,
 - d) Actions to remedy any exceedance of the approved flow limits. Any exceedance of the approved flow limits shall constitute a violation of this conditional approval and cause for the Executive Secretary to take enforcement action, including but not limited to, an order to shut down the dump leach and remove all fluids through exercise of the Contingency Plan under Part I H(2) of the permit and UAC R-448-6-6.18 A(4), and
 - e) A schedule of monthly written reports of the water balance data and related activities to the Executive Secretary.

Failure to comply with any or all of these activities to the satisfaction of the Executive Secretary shall constitute a violation of Parts I H(3) and Part I E(2) of the permit. Operation of the dump leach is not authorized unless all the requirements of this conditional approval are met, but in no event is operation of the dump leach authorized beyond June 15, 1991 without prior Executive Secretary approval.

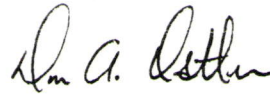
In addition, during this interim operational period, Barrick must undertake all other reasonable measures to minimize the potential for release of pregnant liquor. As a minimum, this must include limiting the head in the dump leach to the lowest practical level. This level should be significantly lower than the 30 foot maximum level required by Part I D(3) of the permit. Barrick shall submit on or before January 15, 1991 a plan to control the head and a determination of the lowest head level sustainable in the dump leach for approval by the Executive Secretary. This plan shall also include at least daily monitoring of process pool head and monthly written reports to the Executive Secretary.

Mr. Frank Wicks
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If you have any questions or comments, please call Loren Morton and 538-6146. We look forward to your continued cooperation and compliance.

Sincerely,

Utah Water Pollution Control Committee



Don A. Ostler, P.E.
Executive Secretary

DAO:LBM:kc

cc: Fred Nelson, Attorney Generals Office
Terry Vandell, Dames & Moore
Wayne Hedberg, DOGM
Matt Trujillo, Tooele County Health Dept.

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